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California GARDEN

SINCE 1909 APRIL-MAY, 1967 VOL. 58 NO. 2





Oncidium Jonesianum
Rather rare orchid from Tropical America.



Epidendrum O'Brienianum native to Tropical America and widely propagated in United States.



Phalaenopsis Buyssoniana
Native of Thailand.



Cypripedium acaule growing at Doubling Gap, Pennsylvania.
This hardy species is widely distributed throughout the U.S.

Among our Contributors

Dr. Edward Creutz is vice president for research and development at General Atomic Division of General Dynamics Corporation with headquarters in San Diego. He has collected orchids in Australia, Tahiti, Fiji, Central America, and Mexico, as well as in several parts of the United States. He combines this hobby with that of color photography, and the color photographs included in this issue were made by him.

Frank Mousseau, vice president of the San Diego Cactus and Succulent Society, is a member of the Bromeliad Society and of the San Diego Men's Garden Club. He has been making his collection of exotic plants since 1960.

James R. Breece, Agricultural Extension Service Farm Adviser on commercial ornamental plant growing and turf management, came to San Diego from Imperial County. He was earlier connected with the state Department of Agriculture, Department of Entomology.

Carl F. Truby, former president of the Rose Society, and his wife are ardent rosarians having 300 roses which they care for, with the aid of their five children. He is also a Consulting Rosarian and a Rose Judge.

Mrs. Phyllis Johnson, native of Cleveland Ohio, received her education there but has been a long time Californian. Coming from the desert to San Diego, she, her husband and three daughters, were entranced by the tropical plants, and enthusiastically landscaped their place. She has written for American Home, California Home and various Curtis publications.

Hudson T. Hartmann is Professor of Pomology, University of California at Davis.

The article on 'Swan Hill' Olive is a reprint from *California Agriculture,* January, 1967.

CALIFORNIA GARDEN

April - May, 1967

Vol. 58 No. 6

THE COVER

Use of Cattleya Hybrids for decorating Temuere of Tahiti.

All photos in color by Edward Creutz.

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FLORAL EVENTS

APRIL - MAY, 1967

SAN DIEGO FLORAL ASSOCIATION PROGRAMS

Third Tuesday, 8 p.m. Floral Building, Balboa Park

Chairman — Captain Charles E. A. Spiegel

Regular Meeting, April 18, 1967

Mr. J. Howard Asper will discuss his newly-introduced Protea planting. These have suddenly become the enthusiasm of the plant collector. From South Africa, they had been unpredictable here until he succeeded in taming them and is now growing them in ever-increasing numbers at his Camellia Nursery north of Escondido.

Regular Meeting, May 16, 1967

Jane Minshall, Landscape Architect in charge with the San Diego Public Schools, will talk on School Landscaping, emphasizing planting design. She will show slides of plants used and give reasons for using these combinations of color and texture, including ground covers for flat spaces and slopes.

FLOWER SHOWS

APRIL

Mar. 31-Apr. 2
Fri. 7-10 p.m.
Sat. 10-9 p.m.
Sun. 10-5:30 p.m.
ORCHID SHOW *"Orchids on Parade"*
Conference Bldg., Balboa Park
SAN DIEGO COUNTY ORCHID SOCIETY

8
Sat. 10:30-5:30 p.m.
LA JOLLA GARDENS TOUR, 31st
St. James by the Sea Episc. Church
CHURCH WOMEN

22-23
Sat. 2-9 p.m.
Sun. 10-6 p.m.
SPRING ROSE SHOW, 39th ANNUAL
"Holiday with Roses"
Conference Bldg., Balboa Park

29-30
Sat. 2-8 p.m.
Sun. 10-4:30 p.m.
CORONADO FLOWER SHOW, 32nd ANNUAL
"Springtime in Coronado"
Spreckels Park, Orange Ave., Coronado
CORONADO FLORAL ASS'N & CITY OF CORONADO

29-30
FLOWER SHOW, 36th ANNUAL
"Swinging through the Garden Gate"
Masonic Temple, 427 N. Hill, Fallbrook

29-30
SPRING FLOWER SHOW
Vista Recreation Center
VISTA GARDEN CLUB

29-30
Sat. 1:30-6 p.m.
Sun. 11-6 p.m.
IRIS SHOW *"Iris Wonderland"*
Conference Bldg., Balboa Park
S.D. IMPERIAL COUNTIES IRIS SOCIETY

MAY

7
EPIPHYLLUM SHOW
Los Angeles State & County Arboretum,
301 N. Baldwin, Arcadia

13-14
FLOWER SHOW, 6th ANNUAL
"Poway's Posey Parade"
Valley School Auditorium
POWAY VALLEY GARDEN CLUB

13-14
GERANIUM SHOW
L. A. S. C. Arboretum, 301 N. Baldwin, Arcadia

13-27
WILDFLOWER SHOW
Community Hall, Julian

25-27
MISSION VALLEY CENTER FLOWER SHOW
Mission Valley Center
MEN'S GARDEN CLUB OF SAN DIEGO

26-28
BONSAI EXHIBIT
L. A. S. C. Arboretum, 301 N. Baldwin, Arcadia

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Flower Show Premiums at San Diego Fair Hit Record!

Premium Lists are now available at the San Diego County Fair. If you want to enter your choice plant materials and have not received a Premium List through the mail, you can write to Entry Dept., San Diego County Fair, Del Mar and ask for one.

As usual, the Floriculture Department has the highest sum for premiums, $29,905. However this does not mean that you have an opportunity to reap an astronomical award for your cherished plant because that plant will meet stiff competition from a lot of other well-grown specimens.

The Floriculture Department, under able Bob Lamp, is world-renowned for the variety and quality of its entries as well as the record multiplicity of classes under which your plant can be entered.

So start looking over your choice specimens in relation to the Entry List, and judge where you think your plant will fare best. Then get busy right away because entries close on June 1st.

If, perchance, you don't walk away with a Blue Ribbon, you do have the opportunity of comparing your darling with the other entries in its class, — perhaps of meeting some of the other growers of like materials. Just start a conversation with someone you meet hanging around that exhibit where your plant is resting, and it is likely that you have met another enthusiastic grower of your hobby plant also, who is gazing as fondly on his entry as you are on yours.

DON'T MISS THIS SAN DIEGO COUNTY FAIR. HIGHLY RECOMMENDED BY YOUR CALIFORNIA GARDEN MAGAZINE



Make Your Soil Before You Plant

by James R. Breece

WHAT is a soil mixture? We mix together materials to achieve a desirable growing media. Generally we think of soil mix as a natural field soil to which other materials have been added to change its physical and chemical characteristics. However, some soil mixtures, such as the U.C.* mixes, have no natural soil.

The value of a selected soil mixture is often discussed by horticulturists. One may praise the merits of a certain soil mixture, while another will praise equally the merits of other soil mixtures.

**University of California Manual 23*

What are the characteristics of a desirable soil mix? A good soil mix provides the following conditions for ideal growth of horticultural crops.

1. **Increase air space for good aeration.** Roots respire; oxygen is consumed and carbon dioxide is released. Aeration is the process of gaseous exchange between aerial atmosphere and root zone. The greater the amount of air space in the soil, the faster the diffusion will be. Heavy clay soil, compacted soil, and poorly drained soils do not have a high per cent of air space. These soils require special management for acceptable plant growth to occur. Heavy foot or wheel traffic in turf areas compacts the soil thus reducing air spaces. These areas require frequent aerification and bulky soil amendments.

The critical level of air space is 10%; however, most plants would do better at a higher per cent of air space. Good soil mixes insure adequate air space and provide means of resisting compaction.

2. **Increase water drainage.** Drainage is important for at least three reasons. (a) Good drainage is needed to carry away the excess salts. Most of our water contains salts. If these salts are not leached away the salts are likely to accumulate and become toxic to the plants. (b) Poor drainage will decrease the rate of diffusion of oxygen through the soil. (c) Plant roots become more susceptible to attack by disease-causing organism. The plants may be able to outgrow the attack of some plant pathogens in a well-drained soil. In a water-logged soil, the roots are not growing fast enough to outgrow a fungus attack.

3. **Adequate water availability.** Pure coarse sand certainly provides air space and drainage, but sandy soil needs to be watered frequently. Sandy soils do not retain much water. A high per cent of this retained water is available to the plant, but there is not



Planting in Prepared Soil.

Photo Courtesy Union Tribune

enough available water to sustain a plant when water loss is rapid. Clay soil would retain more water and release more to a plant than an equal volume of sandy soil. A clay soil would also have a high per cent of water that was unavailable to the plant. Clay soils also retain a high per cent of nutrients, whereas sandy soils are likely to have nutrients leached out.

Why don't we use clay soils if they retain water and nutrients? Back to the first two essential factors for a desirable soil. Air space and good drainage are very important. It is easier for the horticulturist to supply water and nutrients to soil mix that has good drainage and a high per cent of air space than to manage a soil with poor drainage and little air space.

4. **Low weight for handling and shipping.** This factor is important to nurserymen or anyone who moves containers. Light weight soil is important for planter boxes on top of buildings. Organic matter lightens the weight of clay and sandy soils.

What are soil amendments? Soil amendments are materials that improve the soil by changing the physical or chemical properties of soil. Note that there was no mention of nutrients. An amendment may have some nutrient value, but the main purpose is physical and chemical change of soil. Amendments to change the physical properties of a soil may be organic or inorganic. Examples of organic soil amendments are sawdust shavings, processed wood products, manure, mushroom compost, peat and sludges; inorganic amendments include vermiculite, perlite, and sand. These amendments change physical properties by enlarging the pore spaces. A large amount of the amendment may be needed. For example, some soils need up to 60% sawdust or shavings before the physical properties are definitely improved.

Chemical properties of soil can be changed, but chemical amendments can be useful for only specific problems.

A soil with excess sodium can be improved by adding gypsum, sulfur, sulfuric acid, and sulfate. If you suspect an excess of sodium in your soil you should have the soil analyzed to determine how much of this kind of amendment should be added to the soil.

The University of California Agricultural Extension Service office has a leaflet that explains how to test your soil for excess sodium. The name of this leaflet is "Gypsum and Other Chemical Amendments for Soil Improvement." This publication is free of charge from your Farm Advisor Office, Building 4, 5555 Overland Avenue, San Diego, Calif. 92123.

NEW PUBLICATIONS AVAILABLE AT THIS OFFICE

Managing Layered and Compacted Soil.

Soil Management on Hardpan and Claypan.

Know Your Turfgrass.

Which is the Best Turf Grass?

A soil with a pH of 5, or lower, is considered a very acid soil. Some seeds and rooted cuttings do poorly in extremely acid soils. Liming of such soils will increase the pH and bring down the acidity. Amendments to increase pH are: oyster shells, quicklime, hydrated lime, and limestone.

Soil amendments can be used in establishing a new lawn. The addition of 25-30% organic matter of the soil volume is often used on our mesa soils. This amounts to about 1-1½" of organic matter spread evenly over the area and cultivated from 4 to 6" deep.

One parting bit of advice. Sand is not a good amendment for improving clay soils. The mixture would need about 90% sand before the soil would be changed.

Which soil mix is best for containers? Only you can decide which soil mix is best for your needs. I can only suggest mixtures. The following is a table giving the five basic U. C. Soil Mixes for container-grown plants:

THE FIVE BASIC U. C.† SOIL MIXES

Soil Mix	Ingredients, per cent by volume		Weight, pounds per cubic foot		Maximum water content**		pH with fertilizer added	Approx. cost per cubic yard	Comments and Suggested Uses
	Fine sand	Peat Moss*	At maximum water content**	Oven-dry	Per cent by volume	Per cent by weight			
A	100	0	117	89	43	30	7.0	$2.00	Seldom used; densest and least retentive of nutrients; for cans, flats, beds.
B	75	25	105	76	46	38	6.8	3.19	Commonly used; good physical properties; for cans, flats, beds.
C	50	50	94	63	48	48	6.5	4.37	Commonly used; excellent physical properties; for pots and beds.
D	25	75	66	34	51	94	6.0	5.56	Light weight; excellent aeration; for pots and beds.
E	0	100*	43	7	59	530	5.7	$6.75	Very light weight; used for azaleas, sometimes gardenias and camellias.

*Redwood shavings may be used for part of the peat in mix E to improve aeration and reduce cost. Redwood shavings or sawdust or rice hulls may also be used for some or all of the peat in other mixes.

**Maximum water content, and weight at that moisture level, are typical for a 6-inch column of a mixture of fine sand of the Oakley series and Canadian peat moss.

†University of California Manual 23.

ROSES

"Those Delightful Miniatures"

by Marianne and Carl Truby

LATELY there has been a quick growth of interest in miniature roses. Many Rose Shows have increased their miniature sections and have broadened the classes to include many colors as well as potted plants. Miniature roses are being stocked by nurserymen who never had stocked them before, not to mention the increased volume of mail order sales.



Thimble Arrangement of Miniature Rose Lori Nan.

Photo Courtesy of Ralph Moore, Visalia

Buyers are attracted by the petite little flowers, with their everblooming habits, hardiness and their practical use as potted plants, borders, window boxes and unusual containers.

The search for better varieties has been long and trying but with rewards, and at least one California hybridizer (Mr. Ralph Moore of Sequoia Nurseries, Visalia, California) has produced several exciting miniature roses. Some of these are; (Red) **Beauty Secret,** and **Little Buckaroo;** (Pink) **Eleanor** and **June Time;** (Yellow) **Yellow Doll** and **Bit O' Sunshine;** (White) **Jet Trail** and **Easter Morning;** (Orange red) **Jeanie Williams** and **New Penny.**

Other varieties new and now being grown in this area for the first time are **Chipper** an orange red, **Mary Adair** a blushing apricot, **Debbie** with colors similar to those of the popular **Peace** rose, and **Cri Cri** a double coral salmon.

Miniature rose fanciers may also grow miniature tree roses and miniature climbers. There are now available 22 varieties of miniature tree roses and 7 miniature climbers. This writer recommends **Beauty Secret** (red) and **Eleanor** (pink) in the tree varieties and **Hi Ho** (red) and **Pink Cameo** (pink) in the climbers.

All types of miniatures will grow and bloom in about any environment that the bigger roses do — however, for the best results we have found the following to be most satisfactory. Find a spot in your garden where they will



Arrangement in 3″ vase, the large bud "Elinor," two small buds, "New Penny" Grown by Carl Truby.

Betty Mackintosh

get morning but only partial afternoon sun. Try to keep away from fences or walls and preferably plant them where the air circulates freely. If your miniatures are in containers then place them up off the ground on a bench or platform for reasons to be explained later.

The best medium for container-grown miniatures is one/third good garden soil, one/third sand and one/third peat moss. Be sure to place some coarse gravel in the bottom to allow for good drainage. After your plant is established or about six weeks from date of planting, you can obtain excellent results by fertilizing with fish emulsion used at half strength. Miniature roses love fish emulsion and should be fed about once a month. Remember always water your plant at least 4 hours prior to fertilizing or spraying.

Even though miniature roses are tough little plants they need help in their battle with the bugs. Of course, good sanitation can lessen your pest problems especially if you place your containers up off the ground as mentioned earlier. Many insects find the soil and grass excellent homes while waiting for something better to happen by and if our plants are off the ground, then the route is more difficult. The two most troublesome pests are aphids and red spider mites, and each are controlled with Malathion (50% liquid). Always cover the plant completely and repeat the treatment once each week for 3 weeks. Mildew is rarely a problem where ventilation is good, however if you must spray for mildew then I recommend Orthorix at 1½ teaspoons per gallon of water.

Now that we have the best miniature roses available and are caring for them properly, we can expect some beautiful little flowers (blooms) worthy of sharing with others. Each year, generally the spring months, rose shows throughout southern California gladly accept miniature roses for exhibition. The rules are quite simple. Cut your stem so that the foliage and bloom complement each other and are balanced. The bloom should be from one-half to three-fourths open and fresh and crisp. Be sure to clean both bloom and foliage of dust or other distracting materials. Quite often it is necessary for the exhibitor to furnish his own container for specimen miniature blooms so perhaps it would be wise to take a small pill bottle or a tiny vase to display your blooms in. In addition to cut flowers some shows also provide for showing potted miniature roses. In this case the container should be of simple design and of about 6 inch size.

The four best varieties for exhibiting according to this exhibitor are **Beauty Secret** (red) **Eleanor** (pink) **Mary Adair** (Apricot) and **Jet Trail** (White).

With more and more people living in apartments, mobile homes and homes with reduced space, we see a very bright future for miniature roses.

Constant effort will be made to originate varieties which are more disease resistant and trouble free. With the exciting new colors and continued success of the plant breeders, a miniature rose exactly for you is now waiting to add to your happy home and garden.

NEW *"GREEN THUMB"* CALENDAR

A revised edition of the "Green Thumb Calendar" edited by Joan Betts is now co-ordinated with the Official Calendar of Flowers, Plants and Trees for the 200th Anniversary Committee celebration. It features a picture in color of the new yellow rose designated as San Diego's own in honor of the 200th Anniversary in 1969. The name of the rose has not yet been officially announced pending its registration by the originators, Armstrong's of Ontario under Dr. David Armstrong.

The Calendar is a project of the Womens' Committee to the San Diego Symphony to benefit their program of Childrens' and Youths' Concerts and in recognition of the editor who is Chairman of the Floral Committee of the 200th Anniversary Celebration. If you wish to procure a copy, ask your friends who are selling them or mail your check for $1.10 to: Office, San Diego Symphony Orchestra Association, P.O. Box 3175, San Diego, California 92103. The cost is $1.00 plus .04 cents tax and the postage. It makes a lovely gift to yourself and to your gardening friends.



Miniature Rose Beauty Secret. Letter Opener Beside Bowl Indicates Size of Arrangement.

—Photo Courtesy of Ralph Moore, Visalia

ORCHID —

THE UNIVERSAL FLOWER

by Edward Creutz

IF NATURE ever had in mind the universal flower, she came close to realizing it in creating orchids. The number of wild species is probably exceeded only by the number of the compositae, that is, the daisy-like flowers. The number of orchid family members has been variously estimated at 15,000 to 30,000, and 24,000 is a good average of expert opinions. They are found in the tropics but also in Greenland. They live in swamps and rain forests but also in deserts and in the water (*Habenaria,* Venezuela). They grow on trees but also on rocks, in the soil, and almost totally underground (*Rhizanthella Gardneri* and *Cryptanthemis Slateri,* Australia). They may be so small that the whole plant provides a convenient boutonniere or so large that they climb trees hundreds of feet high. They may be lavender in color, but all colors except black are known.

✶ ✶

BOTANY

What is an orchid? Botanically, it is a member of the family *Orchidaceae* (the end of which is pronounced by saying the letters of the word, ace), which in turn is part of the order *Microspermae,* which means very small seeds. Small they are indeed since those of many species are less than 10 thousandths of an inch in diameter, and it would require five hundred million to weigh a pound. Nearly four million have been estimated in a single seed pod of *Cycnoches chlorochilon.* These tiny seeds consist only of bits of vital protoplasm with no food supply. Growth is therefore a matter of small chance since they depend on being carried by the wind to a suitable location where not only food and moisture are available *ab initio* but also a species of fungi which helps them absorb nutrients in some unknown and wondrous way. A further difficulty the embryo plant must overcome is that it has no roots for several days after germination.

Another almost unique characteristic of the orchids is that, unlike most flowers with their clearly separated stamens and pistils, their sex organs are combined in one structure called the **column** or **gynandrium,** more or less centered in the flower where you would expect stamens and pistils to be found. A small even number (2, 4, 6, or 8) of pollen sacs **(pollinia)** are found near the end of the column, while the female external parts, called stigmatic surfaces, are areas of the outer sheath of the column, isolated from the pollinia by a protruberance on the column called the **rostellum.** This unusual arrangement of the sexual machinery is typical of the length to which orchids go to avoid self-pollination, as though their extremely varied forms and habits could be maintained and propagated only by insisting on a high probability of cross-fertilization. Additional tricks used by various species of orchids for this purpose include narrow passageways arranged so that an insect is trapped after alighting on the flower. Thus, it must pass the stigma and then the pollinia, in that order, so that pollen retained from a previous encounter with another flower comes in contact with the stigma of the new one. Other

tricks are used to ensure that only one species of insect of the likely size and shape to effect pollination will visit the flower. Several flowers have the appearance of female insects (e.g., *Scolia ciliata*) so that the male of this species will be attracted and carry out the pollination act using the pollinia that became attached to his body during a previous misdirected attempt to fertilize his own kind.

The casual observer need not notice the size of the seed or even the absence of separate stamens and pistils to be able to recognize a flower as being an orchid. In general, there are three colored sepals arranged in a whorl, inside of which are three colored petals in a second whorl. The three sepals usually are of the same general shape, as are two of the petals, while the third petal is most imaginatively modified. The petal is frequently developed into a pouch or lip, multicolored, fringed, tasseled, or decorated in some interesting manner.

As the flower bud is developing, the petal that is to become the lip is normally at the top. The lip makes a good landing place for insects, and since having the lip at the top would be an inconvenient arrangement, the flower stems of most orchids twist around 180° during the development of the bud. This twisting process is called resupination. In some species the obvious landing point is the lip at the top of the flower after the bud has opened. In these cases the flower stem twists a total of 360° as the bud is developing, as though the orchid wants to do the twist whether it really needs to or not. Another general characteristic of orchids is that their roots are fleshy and consist of a central fibre covered with a strongly water-absorbing layer called velamen. This remarkable tissue contains a number of air reservoirs that appear as whitish flecks after the root is thoroughly moistened and has gained a general greenish color.

The flowering season, even for various members of a given genus (for example, *Cymbidium*), may range throughout the year, depending on the species. Thus, by selecting a dozen or so varieties, since the flowers last on the plants for weeks, it is possible to have flowers the entire year. Hybrids may flower more than once a year, following the habits of both parents, or some other indefinite scheme. The flowering period of certain *Cattleya* and *Dendrobium phalaenopsis* individuals is known to be hastened by shortening the length of the light period during the 24-hour cycle. In this case sufficient light intensity must be given to compensate for the shorter period. Too high temperatures during the day, or night temperatures appreciably under those listed below under "Culture," may prevent blooming entirely.



CLASSIFICATION

Orchids are classified broadly into four types depending on their habitat: (1) the **terrestrials** live with their roots in the soil, much as many other plants. Typical genera are *Cypripedium,* the mostly hardy lady-slippers; *Paphiopedilum,* their usually tropical cousins similar in appearance to *Cypripedium* and therefore frequently called cyps out of association; and the easily grown *Bletilla* of the Orient. (2) The **epiphytes** live in trees, usually in rather thick jungle, apparently to enhance the amount of light they receive. The roots ramble over the bark surface and are exposed to the atmosphere, drying out thoroughly between rain showers. To compensate for this drying phenomenon the epiphytes usually have enlargements of the leaf stems called pseudobulbs, which, like a camel's hump, can store food and water for long periods. Typical of these are *Cattleyas, Oncidiums,* and Odontoglossums. (3) The **lithophytes** are similar to the epiphytes, and spread their roots on the surface of more or less bare rocks. (4) the **saprophytes** live on decaying animal or vegetable material, for example, on rotting logs. Their all-white leaves and stems contain no chlorophyll. Examples are *Corallorhiza* and *Galeola.* Possibly the occasional occurrences of these plants growing on the corpses of dead animals have lead to the myths about man-eating orchids.



CULTURE

Contrary to some popular beliefs, orchids are not difficult to grow, at least not in the sense that the grower must know some mystical procedures to make them thrive. However, like all cultivated plants, they need attention to their requirements, which are easily understood if their particular natural habitat is considered. The details, of course, depend on the species. In general, orchids need the following things:

Air. They need gently moving fresh air. Much like people, they are susceptible to diseases if enclosed for a long time in stagnant air.

Light. They need large quantities of diffused light, usually not direct sunlight that would burn the leaves. Light coming through lattices, screens, or partly white-washed glass with a transmission of about 50% is good.

Temperature. They need a definite difference between day and night temperatures. The maximum acceptable day temperature is dependent on the relative humidity. Temperatures above 80°F are likely to be harmful unless the relative humidity is at least 60%. The acceptable minimum night temperature depends on the species, which, except for the hardy species which are deciduous and overwinter as rooted corms underground, are usually divided into three classes for this purpose: the cool orchids, whose night temperature should not be less than 45°F; the intermediate, 55°F; and the warm, 65°F.

Moisture. The terrestrial orchids and the saprophytes, which usually have no pseudobulb storehouses for water, should have some moisture continuously at the roots. The epiphytes and lithophytes, on the other hand, should be thoroughly watered periodically only after the roots have dried out. This may be twice a week or twice a month, depending on the size of the pot, the kind of potting material, and the ambient relative humidity. Continuous moisture on their roots invariably will lead to rot. The healthy looking greenish color of damp roots must be a passing phase only. If the roots are not allowed to return soon to their dry whitish condition, the plants will die. However, a continuous supply of water vapor in the air for all types is most desirable and, as mentioned above, is essential if the temperature is high. The requirement for water vapor means that some form of humidification, either automatic in the greenhouse or almost daily spraying of the foliage in the home or garden, is necessary.

Rest. Although a few species of orchids bloom nearly continuously, this is exceptional; most require a period of rest with reduced moisture immediately after flowering is complete. The length of this rest is determined by the length of the dry period that follows the rainy season in the plant's natural setting. It may

vary from a few weeks to several months.

Potting Material. Here, as in everything else concerned with orchid culture, the plant should be treated as much as possible as though it had never left its original home. The epiphytes and lithophytes do well in shredded fir tree bark, compact chunks of roots of the osmunda fern, slabs of the porous trunks of tree ferns, or, if particular care is taken as to feeding and watering, even gravel. The important thing is that the potting material should be capable of drying out thoroughly. Terrestrials and saprophytes need a material that holds a little moisture continuously. The materials suggested for epiphytes could be used only if watered daily or nearly so. For terrestrials and saprophytes it is therefore convenient to add sphagnum moss, decayed leaves, small amounts of peat moss, or other water-absorbing materials. However, it is important that the potting material not be continuously soggy, since a certain amount of air must penetrate it. The pot itself can be of ordinary clay or plastic, but the drainage hole in the bottom should be opened up considerably to increase the circulation of air and avoid the retention of too much moisture.

Fertilizer. Again, the conditions of the orchid's original home should be thought of. Nutrients come from slow decay of tree bark or slow solution of minerals in rocks by rainwater, and there is little chance for a concentrated dose of food. Therefore, fertilizer must be applied in greater dilution and with greater frequency than would be satisfactory for most plants. In general, fertilizers high in nitrogen and diluted at least twice as much as recommended for garden flowers are applied every two weeks, after a thorough watering to remove the residual salts from the previous fertilization.

Propagation. Although most commercial orchids are now grown from seed, this procedure is not for the average amateur. Many orchids can be divided with a sharp knife into clumps of no less than three or four pseudobulbs each, and the sections repotted. The terrestrials, which do not have pseudobulbs, produce additional growths each year, and when several of these have accumulated they may also be separated into groups of two or three. Other orchids produce plantlets directly on the stems. These should be allowed to stay on the stems until several roots have appeared, and then potted. These little plants are called keikis (the Americanized plural of the Hawaiian word for child).

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PROBLEMS AND REMEDIES

If growths are soft, dark, and spindly, not enough light is available.

Large brown or black areas on the leaves indicate burning from too much direct sunlight.

Snails can be controlled through a metaldehyde poison.

Aphids, scale, thrips, and mealy bugs can be destroyed by spraying with nicotine or DDT.

Roots that are soggy and do not grow signify that there is too much or too continuous moisture in the pot.

If the pseudobulbs shrink and shrivel, the roots have rotted from too much moisture, or the relative humidity is too low.

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USES

Orchids have been recognized in official capacities. *Cypripedium reginae* (the Queen's Slipper) is the state flower of Minnesota; *Lycaste virginalis forma alba,* "la Monja Blanca" (the White Nun), is the national flower of Guatemala; *Cattleya labiata* variety *Dowiana* ("la Guaria Morada") and *Cattleya Skinneri* ("la flor de San Sebastian") are both variously used as the national flower of Costa Rica; and *Laelia purpurata* is the national flower of Brazil.

Orchids have decorated postage stamps of Brazil, Ceylon, Honduras, Guatemala, and China.

The largest island of the Hawaiian chain is known as the orchid isle. Most of its orchids are descendants of fairly recent immigrants and are mixtures of several races, as are many of its beautiful women.

The most common commercial orchid is *Vanilla planifolia,* whose dried seed pods provide the aromatic flavoring. Salep, a bland food, is made from dried and ground tubers of the genus *Orchis.* Other typical uses are:

Vegetables: *Anoectochilus,* in Malaya and Indonesia.

Tea: *Jumellea,* in the Mascarene Islands, Madagascar.

Medicines: *Epipactis latifolia,* in the United States.

Glue: *Cyrtopodium,* in Brazil.

Religious talismans and love potions: *Coelogyne asperata,* in Borneo; *Cymbidium Finlaysonianum,* in Malaya; and *Grammatophyllum scriptum,* in the Philippines.

But the greatest popularity of orchids is for the pleasure they give in displaying their unusual habits and their remarkable flowers. Since they grow all over the world, they make good souvenirs of trips and may be imported after proper arrangements have been made with their own governmental bodies and the U.S. Department of Agriculture. After importation and the obligatory fumigation, they should be washed, mercilessly root-pruned, potted, and kept rather dry for several weeks before a regular routine of fertilizing and watering is begun. Decoration of the female human species is perhaps the best known use of orchids, and this purpose is adequate reason for many people to grow them for whatever return — esthetic, emotional, or economic — they may bring.

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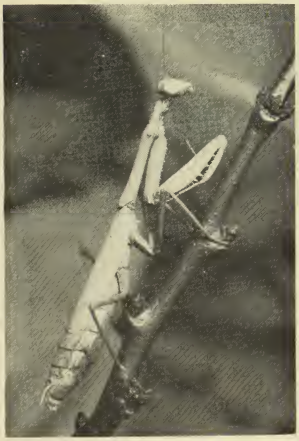
Friend Or Foe

by Phyllis Conner Johnson

IN THE midst of jubilation that spring or summer has arrived do you ever feel concern that everything in the garden is going to the bugs?

You are not alone in your concern, and there is something that you can do about the situation — using nature's own method of control.

There is nothing wrong with insects providing that they are the right kind — helpful. The Praying Mantis *Stagmomantis sp.* and the Ladybug California Ladybird Beetle *Coccinella transversoguttata californica* can be two of your best friends. Many gardeners, flower growers, and farmers will testify to this. The City of Los Angeles Park System uses several million Ladybugs every summer. Several tons of these carnivorous little friends are used by farmers and growers in California, Arizona, New Mexico, Texas, Oklahoma, Nebraska, Idaho, Florida, Ohio and other states every year. Foreign countries, Mexico in particular, are importing hundreds of gallons yearly for more economical and tighter control on various crops.



Praying Mantis, *Stagmomantis sp.*, by the late Lee Passmore.

Courtesy of the San Diego Natural History Museum.

In the valleys of the far west, especially in California, there is born in April and May, a tiny white form of life so small as to be invisible. At once it begins to eat: tiny organisms, eggs and insects fall prey to the voracious appetite of the Ladybug larvae. The life span of the small red Ladybug is approximately one year and during this length of time, whenever they are where there is food, they eat. Forty to fifty aphids a day is not an unusual intake for them, and this is their favorite food. A depleted supply of aphids does not stop them, however, for they consume a variety of other insects such as: bollworm, leafworm, leafhoppers, fruit scales, and corn ear worm. They eat only the eggs and larvae of some of these if the adults are too large to handle. Cotton farmers of Texas have found the Ladybug to be their most satisfactory answer to control the bollworm. The Ladybug will not harm vegetation, being only a meat eater. When Ladybugs run out of food they hibernate in the hills.

The Ladybug, being a native to this country, will survive anywhere unless killed off by poison spray, but in such case they may be replaced at a much lower cost than that of the sprays.



California Ladybird Beetle, *Coccinella transversoguttata californica,* attacking an aphis on a chrysanthemum leaf. *Betty Mackintosh*

The mantis, commonly called Praying Mantis, has a characteristic position of sitting back on the rear appendages, and holding its front appendages in the attitude of prayer. Actually it is laying in wait for its prey, which is snapped up with a lightning pass of the powerful forelegs. In this it differs from the Ladybug, who is constantly on the prowl for food.

The Chinese Praying Mantis was imported into California and north eastern United States from Asia. They have enormous appetites. In the young stage they eat soft-bodied insects such as flies, aphids and small caterpillars. As they grow larger themselves they consume larger insects. Later in the season they are eating grasshoppers and large beetles as well as the smaller insects. They will eat most any insect with the exception of ants, and

(Continued on page 15)

SAN DIEGO
The Gardening Crossroads of the World

by Frank Mousseau

THIS theme will be developed for the San Diego Men's Garden Club sponsored by the Mission Valley Center Flower Show, which will be held May 25, 26 and 27, and then will be entered as an educational theme at the San Diego County Fair in June.

Approximately 120 specimen plants, each representing a different country or geographical area of origin, will be used in the display. Since San Diego gardeners landscape their homes for aesthetic effect without regard for the geographic origin of the plants, the display will be carried out in like manner. European, African, South American, Asiatic, and Australian countries might be represented in a single grouping. Each specimen will be tagged with its country or area of origin and the botanical names of the specimen plants.

The "CROSSROADS" theme originated in an experimental survey of the specimen plants in my own collection. I used the A, B, and C parts of the index of EXOTICA 3 for the sampling survey, to see how many countries would be represented. Forty countries were counted. The "CROSSROADS" exhibit will carry on through the rest of the alphabet. A list of botanical names, common names if any, and areas of origin is included. In addition to the list, bromeliads, selected as to condition at the time of the show, and approximately twenty genera of succulent forms will be included.

The purpose of this display is to bring to the viewing public our city's need for a Garden Center, equal in size, scope and professional stature to the San Diego Zoo.

One of the reasons why we have the greatest zoo in the world, besides the uncompromising professional standards of the staff, is our climate. Humans find our climate most comfortable and healthful. So do the animals in our zoo. Try to imagine a climate cool enough for polar bears and warm enough for alligators. San Diego comes closer to that climate ideal than any other large city. And the climate that humans and animals find so comfortable and healthful permits an almost unlimited variety of plants to be used in landscaping our homes.

I present the "CROSSROADS" exhibit as a "Small sampling of your Garden Center in Balboa Park." When I'm asked just where this Garden Center is, I'll confess that unfortunately it now exists only on paper, and in the hopes and dreams of San Diego gardeners, and that we need every interested person's help to bring San Diego Garden Center into reality.

I will speak of the need for the Garden Center as a most important educational facility, and how the Garden Center, situated in the "Gardening Crossroads of the World," will become a tourist attraction equal to the San Diego Zoo. Indeed, it could very well become the Mecca of gardeners in all parts of the world. I will solicit San Diego Botanical Garden Foundation membership from those who show interest in the display, and I will be saying over and over again, "The biggest and best Garden Center in the world begins right here, with you and me."

Following is a list of the specimen plants to be used in the "CROSSROADS" exhibit, their common names, if any, and the countries of origin:

Latin Name	Common Name	Country of Origin
Abelia Grandiflora		China
Aspidistra Elatior	Castiron plant	China
Azalea		China
Bambusa Multiplex	Golden Goddess Bamboo	China
Cotoneaster Apiculata	Cotoneaster	China
Acacia Baileyana	Bailey's Acacia	Australia
Brassaia Actinophylla	Schefflera	Australia, New Zealand
Cordyline Stricta		Australia
Acalypha Godseffiana	Acalypha	New Guinea
Acanthostachys Strobilaceae		Paraguay
Acanthus Mollis	Acanthus	Greece
Carissa Acokanthera		Central Africa
Adromiscus Cooperi		South Africa
Agapanthus Africanus	Blue Lily of the Nile	South Africa
Aloe Arborescens	Tree Aloe	South Africa
Brunsvigia Rosea	Belladonna Amaryllis	South Africa
Carpobrotus Edulis	Hottentot Fig	South Africa
Aeonium Arboreum	Tree Hen-and-Chickens	Morocco
Aeonium Caespitoseum Canariense	Giant Velvet Rose	Canary Islands

Latin Name	Common Name	Country of Origin
Aeonium Haworthii		Tenerife
Lindleyi		Canary Islands
Pseudotablaforme		Tenerife
Tablaeforme		Tenerife
Urbicum		Tenerife
Agave Attenuata	Silver Century Plant	Mexico
Decipiens		Yucatan
Aglaonema	Chinese Evergreen	Philippines
Alocasia Odora	Elephant Ear - Taro	Formosa
Colocasia Esculentum	Elephant Ear - Taro	Hawaii - Fiji
Amaranthus Tricolor	Joseph's Coat	East Indies
Araucaria Excelsa	Star Pine	Norfolk Island
Arbutus		The Bible Lands
Arisaema Tortuosum	Cobra Lily	India
Asparagus Myrtifolius	Smilax	South Africa
Falcatus		Ceylon
Asparagus Meyeri		South Africa
Myriocladus		South Africa
Plumosus	Asparagus Fern	South Africa
Scandens Deflexus		South Africa
Sprengeri		West Africa
Ctenanthe Lubbersiana	Bamburanta	Brazil
Aucuba	Gold Dust Plant	Himalayas
Cocculus Laurifolius		Himalayas
Bauhina Purpurea	Orchid Tree	Burma
Cymbidium		Himalayas-Burma
Bougainvillea		Brazil-Peru
Buxus Microphyllia Japonica	Japanese Boxwood	Japan
Caladium		Trinidad
Camellia		Korea
Cissus Antarctica	Kangaroo Vine	Australia
Cissus Rhombifolia	Grape Ivy	West Indies
Ceropegia		Mozambique
Crassula Arborescens		Natal
Falcata	Jade Plant	Cape Province
Tetragona	Miniature Pine	Cape Province
Chlorophytum Comosum var.	Spider Plant	Central Africa
Clivia Miniata	Kafir Lily	Natal
Cyperus Papyrus	Lion's Tail	Egypt
Coprosma Baueri	Mirror Plant	New Zealand
Cyas Revoluta	Japanese Sago Palm	Java-Japan
Dizygotheca Elegantissima	Aralia Elegantissima	New Hebrides
Dudleya Attenuata		San Diego
Pulverenta		San Diego
Ensete Maurelli	Abyssinian Banana	Ethiopia
Fatsia Japonica	Japanese Aralia	Japan
Fatshedera Lizei	Climbing Aralia	Ireland-Japan
Ficus Benjamina	Weeping Chinese Banyan	Malaya
Carica	Fig Tree	The Bible Lands
Elastica	House Rubber Tree	Indonesia
Lyrata (pandurata)	Fiddle Leaf Fig	Trop. W. Africa
Ficus Mysorensis		Burma-India
Retusa Nitida	Indian Laurel	Malaya
Roxburghii		India
Ginkgo Biloba	Ginkgo Tree	China
Graptopetalum Paraguayense	Mother-of-Pearl Plant	Mexico
Heimerliodendron Brunoianum	*Varigatum*— Para-para Tree	New Zealand
Helianthus Annuus	Common Sunflower	Missouri
Hibiscus Syriacus	Rose of Sharon	Syria
Homalocladium Platycladum	Ribbon Plant	Solomon Islands
Hoya Carnosa Varigata		Australia-China
Hyacinthus Orientalis	Hyacinth	The Bible Lands
Convolvulus Mauritanicus	Bush Morning Glory	Sicily
Iresine Herbstii	Blood Leaf	So. Brazil

FRIEND OR FOE from page 13

usually Ladybugs. Therefore, Mantis and Ladybugs go well together. Should the Mantis pick up a Ladybug the Ladybug makes known her displeasure by emitting an odorous fluid. Of course, if the Mantis is extremely hungry it will eat anything, other than vegetation, even to the point where a large female sometimes eats a smaller male Mantis — however, this is rare.

Mantis are the only insects capable of turning their heads from side to side. They will not sting or bite and can become pets, eating meat or insects from your fingers. They are poor at flying and slow at walking. With plenty to eat the Chinese Mantis will sometimes grow to the enormous size of five inches. In size and appetite, the Chinese Mantis is a giant compared to our small native Mantis. If there is adequate food and the Mantes generally like the vicinity they will remain close to the area where they were born.

The hatching period for the Chinese Praying Mantis is in the spring months; as late as June in the northern United States and as early as February in the warmer southern states. The eggs hatch when the weather becomes warm enough and insect food becomes available. Cold weather or cold nights may affect the hatching, but sun, warmth, and rain encourages the process. The baby Mantes emerge from their egg cases and drop to the ground as a living chain. In this form they resemble a large mosquito and blend in easily with plant life.

When left to themselves, the process of saving crops or gardens is as a rule too slow to thwart damage, but by giving the Praying Mantis and the Ladybug help, control can be achieved in relatively brief time. This is where our insect distribution companies, who collect and breed these insects for commercial use, can assist us. Companies such as the California Bug Co. of Auburn, California ship hundreds of gallons of these crop-saving insects every year to all parts of the country. They are shipped by parcel post, air mail, or Railway Express depending upon the size of the order and the immediacy of the need. They may be obtained in as small a quantity as ½ pint to as large a quantity as gallons.

There is no need to feel concern that our gardens are going to the bugs — as long as those bugs are the Ladybug and the Praying Mantis!

Latin Name	Common Name	Country of Origin
Jacaranda Acutifolia	Jacaranda	Brazil
Kalanchoe Varieties		Malagasy Republic
Laurus Nobilis	Sweet Bay	The Bible Lands
Lotus Bertholdi	Red Lotus	Canary Islands
Lonicera Aurea Reticulata	Varigated Honeysuckle	Japan
Meryta Sinclairii	Maori "Puka Tree"	New Zealand
Metasequoia Glyptostroboides	"Dawn Redwood"	China
Monstera Deliciosa	Mexican Breadfruit	Guatemala, Mexico
Myoporum Carsonii		California
Myrtis Communis	Myrtle Bush	The Bible Lands
Nerium Oleander	Oleander	The Bible Lands
Nothopanax Davidii		China
Olea Europea	Olive Tree	The Bible Lands
Ornithogalum Caudatum	Sea Onion	South Africa
Phoenix Reclinata		Senegal
Phyllostachys Aurea	Golden Bamboo (Running)	China
Nigra	Black Bamboo (Running)	South China
Pittosporum Tobira		China-Japan
Plectanthrus Australis		Australia
Podocarpus Macrophylla		China-Japan
Portulacaria Afra	Elephant Bush	South Africa
Scinapsis Aureus	Pothos	Solomon Islands
Scilla Violaceae		South Africa
Punica Granata	Pomegranate	The Bible Lands
Rhoeo Spathaceae	Moses in the Cradle	Mexico
Ruta Graveolens	Common Rue	The Bible Lands
Sansevieria Trifasciata	Snake Plant	South Africa
Setcresea Purpurea	Purple Wandering Jew	Mexico
Solanum Aviculare	Kangaroo Apple	Australia
Stapelia Gigantea	Giant Carrion Flower	Rhodesia
Stephanotis Floribunda	Madagascar Jasmine	Malagasy Republic
Strelitzia Nicolai	Giant White Bird of Paradise	South Africa
Synadenium Grantii	Chartreuse Euphorbia	Tanganyika
Grantii Rubra	Rubyleaf Euphorbia	Tanganyika
Tecomaria Capensis	Cape Honeysuckle	Africa
Ternstroemia Japonica		Japan to India

GARDENER HONORED ON 100TH BIRTHDAY

TV cameras will roll and newsmen will take pictures and notes on April 1, 1967 when the 100th birthday of Mrs. Jennie A. Means will be celebrated with a big cake and a big party at the Floral Association Building.

Hosts will be the San Diego Cactus & Succulent Society, of which she was a Charter member, and is still an active member. She is also a member of the Palomar Cactus & Succulent Society.

She does all of her own gardening, and if you want to know how cactus and succulents should be grown, just take a look at her garden at 4289 Landis St.

Garden friends are invited to visit the Floral Building to congratulate Mrs. Means, by Dr. Reuben V. Vaughn, President of the San Diego Cactus & Succulent Society.

GROW A MUSA BALBISIANA BANANA TREE!

If you have a hankering to grow a huge non-fruiting banana tree, just call the editor, and ask for a seed, or maybe two, and promise that you'll plant and tend it.

The United Fruit Co. sent 10 seeds of *Musa balbisiana* ornamental banana which can grow to 23 feet, or 12 feet in cooler spots, if it is grown in pots and transplanted to larger ones as needed. The company says that in hothouses, it will bear small hands of bananas which are edible but which contain many large seeds.

SHARING-OF-THE-GREEN DAY

A "Sharing-of-the-Green" Day, sponsored by the Garden Section of the Santee Womans' Club, is worth copying by other garden clubs, especially those in out-lying areas whose members have larger growing spaces.

Cuttings, slips, seeds, bulbs and root divisions and even plants, were brought in by those who had plant materials to share. These were placed on tables and booths set up by the club on the Mayfair Market Parking Lot on Saturday, March 4, from 9 to 3 p.m.

Those who wished to acquire new materials, or who were starting new gardens and landscaping projects, could ask for these "starts." With a promise on their part to care for the "greens" given to their care, the recipients became the proud possessors of a garden to be. Possibly right here a new group of green thumb gardeners came into being, and certainly some new gardening friendships were formed.

The California Department of Forestry donated liquidambar saplings to some who were fortunate to have a place for them and who promised them care. The green of this tree turns to scarlet and gold after cool or cold nights in autumn.

"Sharing-of-the-Green" Day is just a part of the Santee Woman's Club drive to "make Santee a pleasanter place to live through planting and gardening." We can already hear the visitors to San Diego's 200th anniversary celebration saying; We think all of San Diego County is beautiful but I think I'd like to live in that beautiful green, wholesome-looking, home-loving Santee that we drove through."

Patronize The Advertisers Who Keep California Garden Growing

'SWAN HILL'

A New Ornamental Fruitless Olive

By Hudson T. Hartmann

THE OLIVE TREE (*Olea europaea* L.) has very desirable characteristics for use as an ornamental. It has attractive, gray-green foliage, and develops a picturesque, gnarled trunk and branch system as the tree grows older. It is an evergreen with a willowy-type of shoot growth which makes a very pleasing appearance.

The great disadvantage of the olive as a street, lawn, or patio tree is the production of fruits which drop over a long period of time during the winter and early spring months. These, of course, become a great nuisance, discoloring concrete walks, adhering to pedestrians' shoes, and attracting birds which consume some of the olives and further contribute to the litter.

Aware of the potential value of a fruitless olive as an ornamental, horticulturists of the University of California have long been on the lookout for an olive tree which does not produce fruits. Occasionally, it appeared that one had been located, but invariably it originated in an area having warm winters and, when grown in regions having greater amounts of winter chilling, such trees would fruit. It is known from the climatic adaptation of olives that the tree requires a period of several months with substantial chilling temperatures (about 2000 hours below 45°F) for flower and fruit production. Trees grown in regions having little or no such chilling produce few blooms or fruit because they have received insufficient winter chilling.

Australian tree

During a sabbatic leave, in Australia in 1960-61, the author discussed the desirability of a fruitless olive tree with horticultural officers of the Victoria Department of Agriculture. They mentioned the existence of a single olive tree which had been planted approximately 30 years previously near a farm house close to the town of Swan Hill in Northern Victoria. This tree had never been known to produce fruits. Other olive trees of the same age planted around the farmhouse fruited normally. This place was visited in November, 1960, just at the time the olive trees were coming into full bloom. The "fruitless" tree was in bloom, but examination proved that the flowers were all staminate, or male. There were no perfect flowers (having both male and female parts) which, in the olive, are necessary if fruits are to be produced. The trees around the farmhouse had been planted as seedlings and apparently the "fruitless" tree carried, as a genetic characteristic, the failure of the pistil (female part of the flower) to develop normally, thus resulting essentially in a "male" tree.

Scion wood was collected from this tree and shipped airmail to California to the USDA Bureau of Entomology and Plant Quarantine in San Francisco where it was fumigated with methyl bromide to destroy any possible insect pests. Following this, the scion wood was delivered to the Department of Pomology at Davis where it was grafted onto two young Mission olive trees, started from cuttings, and growing in 8-gallon containers. A year later (1962) one of the trees was planted at the University's Wolfskill Experimental Orchard at Winters while the other was maintained in the container at Davis. Holding olive trees in containers, where the roots are confined, will usually cause them to begin fruiting earlier than trees set out in the orchard.

While these trees bloomed at both Winters and Davis in 1964, 1965, and 1966, not a single bloom has set fruit, all flowers being the staminate type. In these areas, ample winter chilling occurs to cause olive trees of commercial varieties to produce fruit.

The foliage characteristics of this "fruitless" olive are the same as those of the commercial olive varieties grown in California, exhibiting the desirable gray coloration on the underside of the leaves. The young stems are somewhat angular in shape rather than round as in the usual commercial varieties.

Little is known at present of the relative susceptibility of this clone to the several olive diseases and insect pests which occur in California. Leaves have been found on the trees, however, showing infection with the fungus disease, peacock spot, *Cycloconium oleaginum,* which is widespread on olives in California, especially following wet winters. This is easily controlled, however, by spraying with Bordeaux mixture or lime sulfur, applied in advance of the winter rains.

Leafy cuttings of this "fruitless" olive obtained in midsummer, treated with indolebutyric acid, and placed in a rooting medium of vermiculite and perlite under intermittent mist sprays in the greenhouse failed to root. No cuttings rooted out of two separate trials with 200 cuttings each, although they did callus well and maintained good leaf retention.

Since the cuttings apparently are exceptionally difficult to root, propagation by budding or grafting onto rootstock plants will be necessary. Scions of this "fruitless" olive have been grafted on one- to three-year-old trees of other varieties, started as rooted cuttings, without difficulty. A side-tongue grafting method was used in which the top of the rootstock was not cut back to the inserted scion until the graft union had healed and the scion buds resumed growth.

Grafting wood of this ornamental fruitless olive will be distributed in small quantities for propagating purposes to nurseries through the Foundation Plant Materials Service, Department of Viticulture and Enology, University of California, Davis, starting in the summer of 1968.

The name proposed for this fruitless olive is 'Swan Hill,' after the town in Australia where it was found.

A Book In The Hand

by Alice Mary Greer

Wedding Flowers, Decoration and Etiquette: Virginia Clark. Hearthside Press, 1966, 159 pages: $6.95.

This book is designed to help plan a perfect wedding, large or small, simple or elaborate and, in so doing, to answer questions of protocol that may arise. Here is truly an exhaustive and unique discussion of the multitudinous facets of a wedding.

Arranging the flowers in the home for a simple ceremony is shown in easy-to-follow pictures, charts and directions. Every step of the procedure is told; — cutting garden materials, conditioning it and making it into lovely designs. Bridal consultants and florists will find the book extremely helpful for its many design ideas and its complete coverage of questions in servicing a wedding. Virginia Clark has done a remarkable and a thorough job. There are 85 drawings and 9 color plates.

The 12 chapters cover the whole field; planning the wedding; announcements and pre-wedding parties; wedding protocol; members of the wedding; the wedding ceremony, including the rehearsal; practical advice on flowers, foliage and designs; floral decorations for the church; floral decorations for the home; hotel and garden weddings; making corsages and boutonnieres; making bouquets for the bridal party; flower girls and ring bearers; decorations for reception tables.

The author has had a wide background in interior decorating. She studied at the University of Colorado, her native state. She has written for various trade magazines and has served as a designer at schools sponsored by Florists' Telegraph Delivery. At present her activities as lecturer on design, and as a judge are centered in Boone, Iowa where she and her son own "Virginia's House of Flowers."

New Trends in Flower Arrangement, by Rae L. Goldson, Hearthside Press, 1966, Hard cover, 117 pages, $4.95.

HERE is the second book published by this author, arranger and lecturer from Florida who puts in a book of handbook size a tremendous amount of information that would be helpful to a lecturer or arranger. Her working materials, familiar to us here in California, are used over and over to demonstrate this "New Trend" as she sees it.

As so often happens in books on this subject the text is superior to the illustrations which no doubt would have been more exciting in color. The language used is understandable and presented in good progression through Op Art, Pop Art, Abstract, Assemblages, Mobiles and Stabiles. The author frequently refers to artists and sculptors such as Picasso, Calder, Braque, etc., to make a point and convey to the arranger the great need to be creative.

If you are interested in "Less is More," "Form Follows Function," "Junk Art," contrived containers and "found" objects then this book is for you.

However, it is all summed up with the same old admonition — "The eternal verities of art are still scale, proportion, balance, rhythm, unity, contrast, color and texture" with originality and craftsmanship going hand in hand in this "New Trend" to who knows where.

By Vera Terrell, Flower Arrangers' Guild of San Diego.

The Wild Flowers of California: Mary Elizabeth Parson; Dover Publications; 1966; paper bound; 425 pages; $2.25.

HERE is an old friend in a bright new paper dress. Among the earliest of the popular floras, (first published seventy years ago) still one of the most useful to the wildflower lover who sees a plant new to him and wants to know what to call it. Now it is brought up to date by a table of changes in nomenclature prepared by Roxanne S. Farris of Stanford University. This contains everything needed to make use of the material included: glossary, English and Latin indices, a lucid explanation of terms, brief descriptions of families as well as largest and most important genera; — a key that is easy as keys go.

Some 600 of California's most common or most conspicuous flowering plants are arranged according to color of the flowers. While this is not a scientific approach it is the easiest place for the amateur to start, and probably the most fun. Granted, you can get into "It's pink—no-o—it's purple" conversations with yourself, but at least you won't be looking in the yellow section for your specimen. The 250 illustrations, from pen-and-ink drawings, are a delight to the eye. If you happen to be looking at one of the plants illustrated, your identification will be quick, easy, and unerring.

If your plant is not illustrated, read the descriptions, which you will find accurate, sufficiently detailed to answer your questions, and easily followed through as soon as you get used to reading "lines" as twelfths of an inch. Data is given on stems, leaves, details of flowers and fruits, size and habitat.

Additional information of general nature follows, including those interesting little items we lump under the term "lore:" early uses by Indians and pioneers; how the plant got its common, or botanical, name; relationship to garden plants. Good pick-up book — where else would you ever learn that "Shooting Stars" have been variously called "Mad Violets," "Prairie Pointers," "Mosquito Bills," and "Roosters' Heads?"

By Helen Witham, Wildflower Chairman, San Diego Botanical Garden Foundation.

San Diego Botanical Garden Foundation, Inc.

by Penny Bunker

WITH gardeners, there is always something interesting to do. Springtime is the busiest time of the year as we are occupied with planning for shows, finishing our garden chores, and developing new ideas—so it is with the San Diego Botanical-Garden Foundation. Its trustees and board of councilors are working diligently toward one goal; A GARDEN CENTER.

The Foundation sponsors monthly horticultural classes held the last Thursday of each month in the Floral Building. On January 29, 1967, Dr. Samuel Ayres, Jr. of La Canada, spoke before a meeting jointly sponsored by the San Diego Botanical-Garden Foundation, Inc., and the Floral Committee of San Diego 200th Anniversary, Inc. Dr. Ayres is the Chairman of Horticulture for Los Angeles Beautiful Committee. He is keenly interested in Flowering Trees, Shrubs, and Vines. As a result of multiple correspondences, he donated a rare flowering Brazilian tree, *Chorisa speciosa,* to the City of San Diego for its 200th Anniversary. It was accepted and planted by the Botanical-Garden Foundation.

A tree planting ceremony was held on Arbor Day, March 7, 1967, near the new Otto Educational Building of the San Diego Zoo. Mr. Walter Andersen represented the trustees of the Foundation. Assisting him was Mrs. William (Joan) Betts, Jr., Chairman of the Floral Committee of the 200th Anniversary, Inc. and Mrs. Walter E. (Penny) Bunker, representing the Councilors of the Foundation. Accepting the tree on behalf of the Zoo was Mr. Charles Shaw, Assistant Director.

Also, as a result of Councilman Allen Hitch attending this meeting, he has asked the City Council to consult with Dr. Ayres concerning flowering trees for San Diego, and in particular the landscaping of the new Stadium area.

Even in its infancy, the Botanical-Garden Foundation is contributing to its city.

February and March classes were held with instructions for the growing of Fuchsias and Orchids. Attendance was noted by its wide-spread representation; interested folk coming from as far as North County to Spring Valley on the South.

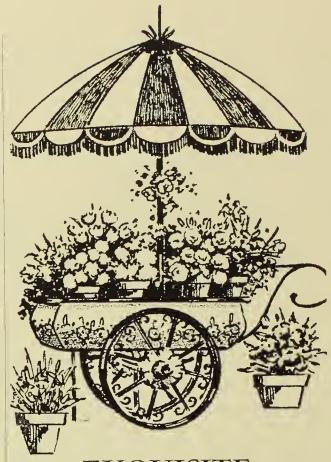
March 31st marked another Preview Night preceding the Orchid Show of April 1 and 2. Councilwoman Helen Cobb cut the ribbon opening "Orchids on Parade"—part of the proceeds to be donated to the Foundation Fund.

Garden Center interest has been intensified by the news that the 200th Anniversary Committee has raised the possibility that the Spanish Government might build a pavilion for their use during 1969 and for the Botanical-Garden Foundation to manage for the benefit of the Garden and Floral organizations thereafter. Representatives of the 200th Anniversary Committee and the City are contacting the Spanish Ambassador toward having the Spanish Government build in the Prado Area, Balboa Park,—possibly on the Garden Center site.

An invitation is extended for all to join the San Diego Botanical-Garden Foundation. Let's all *join* forces for a *truly* CITY BEAUTIFUL.

Meeting of Councilors:
April 7, 1967
7:30 p.m., Floral Bldg., Balboa Park

April Horticultural Class:
Subject — "Iris"
April 27, 1967, 7:30 p.m.
Floral Building, Balboa Park



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Calendar of Care

Down-to-Earth Gardening for April & May



by Dick Hull, Plantsman

FEW GARDENERS will complain about the weather these days. Warm temperatures have pushed out fresh, lush growth almost everywhere one looks. Frost is a thing of the past now, here in the Southwest, except in a few mountain areas. For gardeners the months ahead are the pleasant productive ones.

For those of us who like garden color with annuals this summer, now is the time to plant them. You'll find balsam, sweet alyssum, red salvia, petunia, marigold, cosmos, plume celosia, dwarf dahlia, zinnia and portulaca in most nurseries. Some plants can be started from seed where they are to be grown. These include annual chrysanthemums, nasturtiums, scabiosa and castor beans. A word of warning on the latter; While the foliage is lush and tropical, from bronze green to red, the plants and beans are dangerously poison.

In the vegetable garden, seeds or plants of cucumbers, beets, corn, beans, eggplant, melons, okra, tomatoes, squash, peppers and onions can also be set out now. These will bring on to the table the best of flavor and great satisfaction when home-grown. Don't n e g l e c t the importance of thorough s o i l preparation several weeks before you are planting. This is in itself as important for good results as the quality of seeds or plants one uses.

In southern California and in the low desert regions, the mild winter is bringing pests in great hordes. Aphis is generally the number one pest now in all areas of the southland. You can use a spray mixture of either of the following to rid plants of the pests; Malathion, Lindane or Nicotine sulphate at the strength recommended on the bottle. You can also hose them off the plant with a strong watering, but this only redistributes the aphis; — it does not kill them. Besides there are new generations hatching out all the time. For thrips, use Malathion, Lindane or one of the new systemics exactly as directed. A pest that plagues ornamentals and citrus is the red spider mite. Malathion, applied at two-week intervals, can reduce the infestation. In addition to spraying the plants, keep weeds under control and keep all plant waste material cleaned up not only for garden beauty but to reduce pests.

Citrus and avocados can now be planted, — the sooner the better for the plant. If space is limited, you might check on the dwarf varieties of citrus. These will attain a height of only 8 feet when fully mature. All citrus will need more frequent waterings as the weather warms. Feed with a complete fertilizer this month. For those who plan to, or are already growing dwarf citrus, it is a good idea to give them light feedings at frequent intervals due to the root containment. Citrus likes a sunny area, free from winds and some distance from the lawns. Be sure that the soil drainage is good before you plant.

The Avocado *Persea americana* is confined to the warmest and most frost-free areas. These small evergreen trees belong to the Laurel family Lauraceae. The name is an old Greek one attributed to Theophrastus for an Egyptian tree and later used in its present sense. The soil requirements for avocados are not exacting. It flourishes in sandy and limestone soils

that drain readily. Drainage, it must have. The trees will not prosper if the soil is wet or water-logged. They are even sensitive to water remaining over the root area for as little as two days. In exposed places, the tree should be sheltered from strong winds by protection of some kind. The distance between trees, (if there is room for more than one) will depend upon the variety. A wider spacing should be allowed on rich soils; — a distance of 25 to 35 feet between trees is about right. If possible, two trees are better for insuring fruit setting. Although the flowers contain both functioning male and female elements, they are not ordinarily self-pollinating because the stigma (female part) of each flower matures before the stamens (male organs) of the same flower produce their pollen. The stigma ceases to be receptive before the pollen is ripe. Planting different varieties that pollinate each other satisfactorily will also extend the season of production of the crop.

Newly-set-out trees should be kept well watered and should be shaded at first against strong sunshine. Avocados are heavy feeders and respond to generous fertilization either organic or chemical forms. Care should be taken that excessive use of nitrogenous fertilizer does not result in too much vegetative growth at the expense of fruit production.

Trimming back of any frost-damaged sub-tropicals and flowering shrubs can be accomplished now. Prune back to where vigorous new growth is starting. Thin out old and excessive canes to encourage young growth on nandina, mahonia and bamboo. Cut melianthus major back hard after they have bloomed and are starting to look shabby. On wisteria, remove the long green winding tendril-like stems that develop after the vine has finished blooming. If your vine bloomed sparsely this spring, you might encourage more flower production by cutting off the ends of some of the roots by sliding your shovel around one side of the root area about 2 or 3 feet from the trunk.

Gardening is a lot of fun and a challenge to all to obtain the best results. It has been a pleasure sharing and talking gardening over the past year with all of you. Due to other commitments, I find that it would not be possible to do justice to both the writing and the work I have cut out for myself. So with a happy thought of good gardening to all of you; — until we meet again.

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Roses

by J. Wells Hershey and
Mary Jane Hershey
San Diego Rose Society

APRIL showers bring May flowers they say, but not here, unless they are man-made by the placing of the garden hose and the turning on of the water faucet! Due to a rainless February in San Diego County, we had to start our watering program sooner than we had anticipated — in February, as rose beds should not be allowed to dry out below the top two inches of soil. In checking your soil, don't be misled if the soil under the mulch is damp in the morning. Due to the humidity in the air, condensation in the mulch will occur during the night, so push back the mulch and dig down in the soil, two to four inches, and see just what is going on. Of course, if you have a moisture meter all you have to do is read it.

The method of watering is varied, but can be grouped into three categories; overhead sprinkling, basin system, and underground. We combined the overhead sprinkling with the basin system, alternating according to the demands on the rose garden and of the rose garden. Mrs. Jean Kenneally's underground watering system article, PUT THE WATER WHERE THE ROOTS ARE, (CALIFORNIA GARDEN: Aug./Sept., 1966) was of sufficient interest to rosarians elsewhere that it was reprinted in the American Rose Society's monthly magazine (American Rose Magazine: Oct. 1966).

April also brings the BIG SHOW to San Diego, for on April 22 and 23, 1967, in the Conference Building, Balboa Park, the San Diego Rose Society will hold its 40th Annual Spring Rose Show. The theme "Holiday with Roses" will be evident in the Arrangement Section. If you want to know how to enter roses in this show, come to the April meeting of the San Diego Rose Society, April 17, 1967 at 8:00 p.m. in the San Diego Floral Association Building, Balboa Park. In the April-May 1964 issue of the CALIFORNIA GARDEN is another excellent article on roses, GROOMING ROSES FOR THE SHOW by Clive Pillsbury. Don't leave that Queen of the Show home, sitting on that rose bush;—cut it, groom it and bring it to the show!

April is the month in which you must start thinking about insect and disease control in your rose bed. Whatever method or program you select, you must be consistent. If you are planning to enter roses in the Spring Rose Show, you might try spraying once a week, or oftener if necessary, using a diluted spray, about one-fifth the recommended strength. Good foliage is one of the secrets of growing good roses; because good foliage means long stems, big flowers and good color in the petals. If the leaves are damaged by pest or diseases, the rose bushes will show signs of carbohydrate deficiency, and even though the rose garden may have adequate moisture and food, the stems will be short and the flowers small and light in color. If you asked five rosarians how they controlled insects and diseases in their rose gardens, they might not agree on the manufacturer, or the product, but they would agree that

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control can only be accomplished by a regular spray schedule.

Now is the time to watch for rust on the foliage. It appears on the lower leaves first, (they are nearer the ground where the spores are carried through the winter — and the dormant clean-up spray might not reach all of them) look for little yellow specks on the leaves. If you find any, turn the leaf over — if there are red spots behind the yellow specks remove the leaf at once, because this is rust. Remove all other leaves with rust on them, and check the ground for fallen leaves. As you remove these leaves, place them in your paper bag. Upon completion of this task, place bag in trash can, making certain that your hands or gloves are clean before handling uninfected rose foliage. Rust can defoliate the entire rose garden in a short time, and while the foliage will grow back, beautiful blooms are lost.

Mildew is menacing your bushes every time we have damp or foggy weather, but if you keep your soil on the acid side, pH 6.5 and spray regularly with Acti-Dione you should be able to control it. Some roses are mildew prone, — we had one, Belle of Portugal, which we removed.

As soon as your roses have an inch or two of new growth, they should be fed. There are many good fertilizers on the market, even a systemic rose fertilizer; all have been used with varied degrees of success. Combining a complete soil fertilizer — ½ to 1 cup once a month — with frequent foliar application of a good liquid fertilizer such as Country Squire Rose Food is the procedure followed by Dr. Donald A. Wilson, while Mrs. Jean Kenneally put the liquid fertilizer where the roots are, using her underground watering system. Both make certain the soil is moist, not dry, before feeding their bushes. The new systemic rose fertilizer is granular, it lasts for six weeks, was quite effective on thrip in our rose garden last summer, and as we do not eat our roses, we are planning to use it this year, along with Country Squire Rose Food for foliar feeding. We always water our roses before we feed them.

After our first bloom period of roses is over, which will be approximately the first part of May, we will prune our rose garden and will give it the second application of fertilizer. Our second crop of blooms should be ready about the third and fourth weeks of June, just in time for the SAN DIEGO COUNTY FAIR.

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Irises

by Betty Springer Van Dusen
San Diego - Imperial Counties Iris Society

IRIS time is here or near! Beginning with the advent of the dwarfs and Arils in March, and on through April and into May with the tall bearded varieties, the iris fancier lives in a whirl of irises. When you've been bitten by the "Iris Bug" you find yourself getting up at dawn and rushing out to see what will unfurl each day with perhaps a try at peeling back the petals to rush things on a bit. This results in torn petals but it is almost impossible to resist this urge, especially for the first peek at a newly-acquired variety. Actually it's even difficult to stay indoors at all during iris season for bloomstalks of iris change from hour to hour, and so it goes until at last you must bid them goodnight just as it becomes too dark to see them anymore, and you long for just one more hour of daylight! If you are fortunate enough to have your irises planted where the last rays of the setting sun can shine through the petals as though through stained glass windows you will have an extra special reward for your efforts.

This is also the time for the iris enthusiast to go visiting — the shows, other private and public plantings, and the commercial gardens where visitors are always welcome. Seeing as many varieties as possible is the best way to choose new additions for your collection. Planning your "want list" is one of the joys of the season. To keep your garden up to date some newer varieties should be added each year and older, outmoded ones discarded if space or a change in taste necessitates it. The most noticeable characteristic when considering a new variety is its color, but this is not the most important aspect of an iris. No matter how lovely the color is, an iris is of little worth if it is inclined to fade rapidly, wilt in a day, or lose its trim shape. Therefore substance and form are of the utmost importance. Most of the newer introductions meet these requirements, but a good iris need not be a recent and expensive one if care is used in selection. From a lengthy list of older, inexpensive varieties many are still considered fine garden subjects such as **Char-Maize, Montecito,** and **Techney Chimes** among the yellows; **White Ruffles, Frost & Flame,** and **Swan Ballet,** whites; **Sierra Skies, Galilee,** and **Sparkling Waters,** blues; **Happy Birthday, Lynn Hall,** and **Fleeta,** pinks; **Black Taffeta** and **Violet Hills,** darks; and one of the very best reds to date, **Bang.** One could go on and on naming still other popular "classics." Newly introduced irises generally sell for $25.00 to $30.00 each their first year because of the short supply. Prices drop each year until it is not long before they become readily available to all. What are these fabulous newer irises like? Are they really vastly different from the old "flags" of Grandma's day? It shouldn't be hard to see for yourself with the number of gardens and shows available for your observation, so plan on going visiting this year.

The two largest iris shows in Southern California, the SAN DIEGO-IMPERIAL IRIS SOCIETY SHOW which will be held on April 29th and 30th in the Conference Building, Balboa Park, and the SOUTHERN CALIFORNIA IRIS SOCIETY SHOW in Los Angeles on the same days, both promise to be spectacular affairs. Many hundreds of the very choicest specimens will be vying for your attention and for the coveted blue ribbons. Several smaller shows are scheduled throughout California at about the same time, also. These shows all solicit the entries of well-grown irises from anyone wishing to enter them. Who knows, perhaps you are growing a potential "Queen of the Show," but no one will ever know it if you don't enter it!

It is essential in an American Iris Society Show that each entry be identified by its proper name, so this is a good reason to keep your plants labeled. Irises are judged on the overall quality of the stalk at the moment of judging. A specimen stalk would preferably have three or four open blossoms, well balanced on a straight stalk. The top flower should be open. If the flowers are a little larger than usual for the variety, good culture is indicated and helps boost its chances. Grooming is important, too, with no noticeable tears, water spots, or faded flowers to mar its perfection. Do plan on entering some specimen stalks in a show this year, it just might be more rewarding than you realize.

Probably the worst pest to be found in the iris garden at bloom time is thrip. These minute insects can badly scar the petals while the blossom is still in the bud stage, causing it to open as a deformed flower or one with white streaks marring the smooth petals. Because of the difficulty in reaching these little "critters" with ordinary sprays, a systemic spray such as **Cygon E-2** gives effective and long lasting protection. Please read the cautions carefully.

Keeping an iris garden well-groomed while the irises are in bloom is a pleasant chore. One learns to pick off spent blossoms carefully to avoid picking a bud hidden beneath and to cut off the entire stalk to the ground when all of the blossoms on a stalk have finished. This latter task is perhaps not so cheerful, but planning now for the glory of next spring with bigger clumps and perhaps some new things to look forward to, can compensate for the conclusion of "Iris Time."

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Camellias

by Mrs. William De France

San Diego Camellia Society

THE camellia is one of the easiest plants to grow if its basic cultural requirements are provided. Its demands are few and simple but rather exacting. A study of the plant in its natural surroundings establishes the fact that its basic requirements, studied in the simplest terms, are the following: 1. Some protection from sun and wind; 2. Perfect drainage; 3. Soil that is loose and slightly acid; 4. Shallow planting; 5. Watering properly; 6. A good feeding program.

The camellia, in nature, was a woodland plant protected from strong wind and full sun by tall trees. In the absence of trees one should be able to find some spot where buildings, fences or hedges would provide protection from wind and sun.

It is important that good drainage be provided in order to grow camellias successfully. Camellias can not stand wet feet. If you have to plant in a low, poorly-drained soil, it is advisable to plant in raised beds. The soil in these beds should consist of equal parts of sandy loam soil and firbark. The planting hole should be made two feet wider than the root ball of the plant and to the depth of 18 to 24 inches. Make sure that the top of the root ball extends 2 inches above the ground level. Remember: — MORE CAMELLIAS ARE KILLED FROM PLANTING TOO DEEP THAN FROM ALL OTHER CAUSES. Fill the hole around the ball with a mixture of sandy loam and firbark, then pack and water the soil well.

The most important thing that you can do for your camellia, once it is planted, is to keep it properly watered. A thorough soaking once a week or every 10 days is much better than a light watering every day or two.

Start your feeding program in March or by the first of April. We like to feed with a water soluble 6-10-8 formula, fortified with chelated iron and zinc, and rich fish concentrate that contains no chloride or salts. This type of feeding helps to give the plant a quick take-off in growth. We also spray the foliage well.

A program of general spraying every spring (April or May) and again in the fall (September or October) before the blooming season will insure healthy pest-free plants that will be your pride.

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Dahlias

by Larry Sisk
San Diego County Dahlia Society

IN THE essential battle with insects which all Southern California gardeners fight, there are three specially important times for dahlia growers to be aggressive.

The first is at the time the dahlia sprout breaks through the ground and starts to leaf out. Next is when the buds start showing color. Third is late summer after the weather has warmed enough to encourage spider mites.

During the early stages of growth, dahlias are susceptible to all of the insects that other plants attract, but the most damage can result if thrips and leaf miners get started. Prevention is better than cure, and this can be accomplished by use of the correct poisons: DDT for the thrip and malathion mixed with light spray oil for the leaf miner.

Instead of using the oil, some dahlia growers have had success by using fish emulsion with the malathion and DDT. The fish oil seems to provide just the right film to protect the tender leaves and keeps the other poisons on the plant to provide protection. This mixing of fish emulsion with insecticides also is beneficial by giving the plants a good foliar feeding at a time when fast growth is desirable.

Early treatment is recommended because thrip damage — deformed leaves and stems — and the patterns mined in the dahlia leaves are lasting and will detract from the quality of blooms later on.

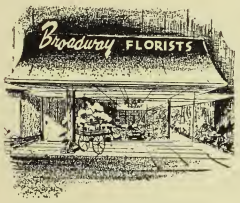
A further protection used by some dahlia growers is arsenate of lead: a heaping tablespoonful with each five to ten gallons of mixture. Gardeners with small children and yard pets should beware of the arsenate of lead.

The next crucial time when the buds start to show color calls for protection against worms and caterpillars. Soaking the plants will help prevent damage to the blooms as the buds open. Malathion, and again with the arsenate of lead if desired, is about the best of the general purpose insecticides. Mixing in the fish at this time also will provide a spreader as well as to give the plants an important blooming boost with the fertilizer.

Because spider mites seem to be immune to many of the insecticides, and because they hide on the under side of dahlia leaves, they come out in force when the weather stays warm. Malathion is supposed to get 'em, and like other sure cures, it doesn't always.

The poison that is effective is kelthane, either straight or in a mixture.

For best protection of the dahlia plants or beds, a regular schedule of spraying is best. Two dosings of the entire garden area and adjoining trees, shrubs and grass plots are recommended for the off season: once, say in early December, and once in early spring from mid-March to mid-April. By using DDT the gardener will thwart the many pests that try to overwinter, from growing season to growing season.



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P. O. Box 608

In addition to the three crucial sprayings, weekly prevention will keep the dahlia plants clean. A similar routine will keep other garden plants clean, too. And in an aside, good gardening techniques practiced by the dahlia grower are good techniques to be used in any kind of garden!

Gardeners have received some important help in their battles against insects from the introduction of systemic poisons. The liquids which have been used by some for several years now have been joined by granular poisons that are applied dry to the soil, and made available by watering. Some dahlia growers are experimenting with the granular poisons by mixing them with the soil in the bottom of the hole at the time the tuber is planted.

Effectiveness of the liquids against aphids and leaf miners has been reported fairly generally, but some gardeners have reservations about their efficiency against some of the caterpillar moths, leaf hoppers and white flies which plague dahlia plants.

The doubting gardener takes his own precautions by following a DDT, malathion, arsenate-of-lead, kelthane routine, in addition to experimenting with the systemics.

As this is the planting season for dahlias, planning to protect them is important. Growers who plan to exhibit at the county fair will have just about completed their planting by mid-April. Those pointing to the big dahlia show in Balboa Park the first weekend in August will begin planting in mid-April and continue for a month.

Dahlias may be planted right on until July for late blooms.

After planting, there should be sufficient growth in one month to permit the plant to be topped; pinch out the growing tip to make the plant bush out. The large and medium-size varieties will bloom about 60 days after topping. The real large ones will take longer.

In addition to topping, disbudding and disbranching are essential to help the large varieties attain maximum size. Only one bud should be permitted to grow on each stem or cane, and no more than four or five canes should be permitted to grow on plants of the large varieties. Medium-size flowers are best when the canes are restricted to six or eight.

The smaller varieties may be permitted to grow as many flowers as they are capable. Pinching-out of the cane tips in addition to the top will produce more and smaller blooms.

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Fuchsias

by Morrison W. Doty

San Diego Fuchsia Society

WITH the end of dormancy and pruning over, even in cool sections, by mid-March, there is lots to do for the Fuchsia grower now that is inspired by the happy surge of Spring growth everywhere. First reminder should be for more frequent and regular watering, especially of all container plants, as these hot days often come now between very cool foggy nights, plus warm winds that dry our plants out dangerously before it seems possible to new gardeners from the East.

A finger test for dampness just under the surface of containers, every day or two in hot or windy weather is a good habit to acquire in caring for plants in this area. It could have saved many puzzling losses lately. It is well also to remember that different soil mixes retain moisture different lengths of time. Some plants you get from nurseries may have a very heavy soil perhaps to avoid too frequent watering, that you may wish to replace with the mixture you have found to produce better results.

There is usually a lot of repotting needed at this time, of old plants ready for larger containers, and of young ones in baskets or planters. Often containers that are not to be changed need fresh rich soil added for replacement of nutrients washed away in heavy watering.

Simple potting mixtures such as equal parts of fine leaf mold, sandy loam and well rotted, weed-free cow manure, with perhaps a little bone and blood meal added, will usually produce excellent results with Fuchsias, for they are hearty feeders and very adaptable. Some good peat moss is advised instead of the leaf mold, and is all right, but if it is once allowed to dry out completely, it may be one contributing cause of the puzzling plant losses. There are many other plant mixes, including the addition of fir bark, sponge rock, rotted redwood shavings, etc. to lighten heavy soil mixes, and there are some fairly complete commercial replacement soil mixes, made in San Diego, that seems very good. We still recommend simple mixes for amateur growers that do include the *natural humus* so deficient in the soil of this area. In feeding, some like to start with one *early* dry fertilizer hi-nitrogen feeding, followed at first by liquid fish-base (also hi-nitrogen, like 10-5-5) to develop sturdy plants — then changing before blooming to a hi-phosphorus fish formula such as 4-10-8 to produce heavy bloom. One tablespoon good organic Fish Concentrate to a gallon of water applied a week apart for "fast-show" growth if desired, or every 2 to 3 weeks throughout the season, gives good results. *Don't* feed new cuttings.

After pruning, early season pinching out of the tips of new growth is very important in shaping Fuchsia plants to their type and blooming potential. The pinched tips divide again and again for more abundant bloom, and that delay grows a sturdier plant, more pest-resistant and longer lived. Remember however, to stop the pinching at least 2 or three weeks before you want blossoms to start setting on, for this makes slower growth. In the interest of keeping container plants to proper shape, some growers take cuttings of favorite varieties at various times all season for themselves, or garden friends, and put them in 2 in. plastic starting pots instead of flats, as they seem to root better in firmer containment.

Early in the growing season also is a good time to start preventive spraying, for it allows the use of the milder safer solutions, such as pyrethrum, rotenone, lindane and nicotine sulphate, rather than the highly toxic petroleum and poison-gas derivatives that have been developed in later years. Systemic insecticides, which are fed into the circulatory system of plants by being put into their soil are being urged upon growers just now, as the ultimate easy solution to rid the garden of most pests. Despite their remarkable advantages however, it may be well not to abandon suddenly our sharp water spraying, and preventive application of the safe old insecticides mentioned, plus perhaps DDT and malathion as needed for the white fly, thrip, red spider mite or aphis that only occasionally afflicts the normally disease-free fuchsia. Watch for the Santana warm winds of late April-early May, and hot dry days sometimes later, with *watering every day* and fogging if possible. It is the life of our little rain-forest plant, especially if planted in containers.

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200th Birthday Floral Committee

by Joan Betts and Alice Zukor

THE Floral Committee is moving right along firming floral plans to carry out our theme title for 1969. To be the "Flower Basket of the Nation" every one must dig in and participate now in order to show visitors and residents alike what a beautiful City of Trees and Flowers, our San Diego can be!

At the January 19th meeting firm dates of the larger Flower Shows and related floral events to record on the Master 200th Anniversary Calendar were given; Camellia Society — middle of February, 1969: Orchid Society — approximately the middle of March 1969: Rose Society — either the third or fourth Sunday in April, 1969; Iris Society — last Sunday in April or first in May. The Dahlia Society then proudly confirmed their show dates as August 2-3, 1969 when they hold their 29th Annual Dahlia Show combined with the Pacific Southwest Conference which includes 11 California Dahlia Societies. It has been tentatively designated as the national American Dahlia Show, a major Floral Exhibition and a tremendous addition to the major events of the 1969 celebration. We thank them and promise to assist in promoting their show plans. Early confirmation of all future dates is essential. There are only two more meetings, March and May before summer.

It was a real privilege to have Dr. Samuel Ayres Jr. well-known speaker on horticulture come from Los Angeles on January 26th. His presentation "Flowering Trees and Flowering Shrubs to Celebrate with Color" with entirely new slides, was enthusiastically received and many purchased the beautiful booklets that we had requested him to bring. Dr. Ayres wrote us upon his return, of his gift to the people of San Diego of a 15 foot Floss Silk tree *Chorisia speciosa* from his own nursery. Councilmen Allen Hitch and J. Michael Schaffer, who attended the dinner and lecture, join with all San Diegans in appreciation of this living gift to our city.

It is anticipated that the registration of our rose for the 1969 Celebration will be announced soon by the American Rose Society. Armstrong Nurseries of Ontario have cooperated since May, 1966 to introduce for the Fall season 1968-69 their beautiful prize winning exhibition-form light yellow rose. The parentage is **Helen Traubel X Tiffany.** Of course our rose will be a winner, like **Lucky Lady,** this year's success from Armstrong.

The Womens' Committee to the San Diego Symphony Association is sponsoring a 5,000 issue printing of the Green Thumb Calendar which has been revised to incorporate the 200th Anniversary Floral Calendar of Flowers, Plants and Trees, and spotlighting our rose for 1969.

Through the inquiries of City Beautiful and the Civic Center Garden Clubs with the endorsement of this committee, Mr. E. C. Williams, County Tax Assessor, has announced in an official letter that "there will be no increase in assessed property valuation when residential plant-tree improvement or moderate additional landscaping is undertaken." The tree and vine section of the tax bill is reserved solely for commercial groves of over one acre in size. This news will give extra encouragement to home landscape improvement for 1969.

It was a privilege on February 23 to attend a special City Council meeting on behalf of progress reports for the Birthday celebration from all committees. We reported our theme, large St. Francis of Assisi statues with flower baskets, made of permanent terracotta concrete placed in key locations on city land. The Council showed keen interest in this project and referred it to City Manager Walter Hahn for further study and report. They encouraged the idea and were informed that when approved, these statues and baskets would be a continuous reminder to our citizens of our theme in San Diego "Flower Basket of the Nation." A pilot project will display one in the near future for final Council and City approval. A dream coming true (like the naming of the City Rose, (a 9-month-long project) but very rewarding all the way.

Another news flash as we go to press; — Mrs. Charles E. Domler, President, Pacific Beach Garden Club has announced their Club's project is to raise money toward expenses of the Floral Committee (hopefully, a project of their choosing directly related to our Floral plants and plans.) Tremendous and so appreciated! Mrs. Domler has also volunteered to speak to the 17 clubs and organizations of the Palomar District California Garden Clubs on all phases of the 200th Anniversary. Support such as this is so appreciated.

In closing, we are most hopeful that with the combined efforts of Spain, the Park and Recreation Department, and The Botanic Garden Foundation, Inc. that our dream of many years — a large, complete Garden Center for San Diego will be a reality — in a very short period of time.

SAN DIEGO FLORAL ASSOCIATION

FLORAL BUILDING, BALBOA PARK

(Under the sponsorship of
The Park and Recreation Dept., City of San Diego)

Third Tuesday, Floral Building, 8 p.m.
Pres.: Mrs. Emmett W. Fowler, Jr. 454-1795
1025 Havenhurst Dr., La Jolla 92037

FLORAL COMMITTEE, 200th ANNIVERSARY, Inc.
Bi-monthly, 3rd Thursday, Floral Building, 7:30 p.m.
Joan Betts, Chairman, Alice Zukor, Co-chairman
291-1969
1600 Pacific Hwy, Rm. 801, S.D., Cal. 92101

SAN DIEGO BOTANICAL GARDEN FOUNDATION, Inc.
Second Thursday, Floral Building
P.O. Box 12162, S. D., Calif. 92112
Pres.: Virgil Schade 298-1949
1753 Myrtle

FLOWER ARRANGERS' GUILD OF SAN DIEGO
First Thursday, Floral Building, 7:30 p.m.
Pres.: Mrs. Edwin Gould 454-1519
7065 Neptune Pl., L.J. 92037

AFFILIATE MEMBERS 1966

CIVIC CENTER GARDEN CLUB
Meets every Thursday, 12m to 1 p.m.
Garden House, Grape and 101 Civic Center
Pres.: Mrs. Donald A. Innis 298-1690
1827 Puterbaugh, S.D. 92103
Rep.: James Saraceno 274-2628
3366 Lloyd St., S.D. 92117

GENERAL DYNAMICS GARDEN CLUB
First Wednesday, Floral Building, 7:30 p.m.
Pres.: Robert Bradshaw 466-4877
9654 Candy Lane, La Mesa 92040
Rep. Dir.: J. E. Henderson 274-1754
3503 Yosemite, S.D. 92109

MEN'S GARDEN CLUB OF SAN DIEGO CO.
Fourth Monday, Floral Bldg., 7:30 p.m.
Pres. John G. Farleigh 295-5404
2217 Whitman St., S.D. 92103
Rep.: Dr. J. W. Troxell 282-9131
4950 Canterbury Drive, S.D. 92116

ORGANIC GARDENING CLUB
Third Friday, Floral Building, 7:30 p.m.
Pres.: Ferd I. Thebus 277-6899
4511 Mt. Gaywas Dr., S.D. 92117
Rep.: Mrs. Mary Panek 222-5031
4680 Del Monte Ave., S.D. 92107

POINT LOMA GARDEN CLUB
First Friday, Floral Bldg., 10 a.m.
Pres.: Mrs. Philip Hardie 223-9720
3756 Kingsley, S.D. 92106
Rep. Mrs. Louis J. Kuiot 222-5480
2732 Azalea Dr., S.D. 92106

SAN DIEGO BONSAI SOCIETY, INC.
Second Sunday, Floral Bldg., 1-5 p.m.
Pres.: Mas Takanashi 264-8451
6655 Detroit St., San Diego
Rep.: Mrs. Helen G. Howe
4767½ Lantana Dr., S.D. 92105 281-1158

SAN DIEGO CACTUS & SUCCULENT SOCIETY
First Saturday, Floral Building, 2 p.m.
Pres.: Reuben V. Vaughn 223-7629
1041 Le Roy St., S.D. 92106
Rep.: Frank Mousseau
5955 Lauretta, S.D. 92110 295-9596

SAN DIEGO CAMELLIA SOCIETY
Second Friday, Floral Building, 7:30 p.m.
Pres.: Samuel E. Foster 444-5314
202 Carter, El Cajon 92020
Rep.: Mrs. Lester Crowder 295-5871
3130 Second St., S.D. 92103

S.D. CHAPTER CALIF. ASS'N NURSERYMEN
Second and Fourth Thursday, 7:30 p.m.
Pres.: John Basney 273-4636
4731 Conrad Ave., S.D. 92117
Rep.: John Basney 273-4636
4731 Conrad Ave., S.D. 92117

SAN DIEGO COUNTY DAHLIA SOCIETY
Fourth Tuesday, Floral Building, 7:30 p.m.
Pres.: Gerald L. Lohmann 295-7645
4564½ Arizona St., S.D. 92116
Rep.: Mrs. R. M. Middleton 296-3246
3944 Centre St., S.D. 92103

SD-IMPERIAL COUNTIES IRIS SOCIETY
Meets 3rd Sunday, Floral Bldg., 2:30 p.m.
Pres.: Arthur B. Day 422-5172
279 J St. Chula Vista 92010
Rep.: Arthur B. Day

SAN DIEGO COUNTY ORCHID SOCIETY
First Tuesday, Floral Building, 8 p.m.
Pres.: James C. Laughter 477-0570
5937 Cumberland St., S.D. 92114
Rep.: Byron Geer 279-1191
5094 Mt. La Platta Dr., S.D. 92117

SAN DIEGO FUCHSIA SOCIETY
Second Monday, Floral Building, 8 p.m.
Pres.: William C. Knotts 277-1188
1912 David St., S.D. 92111
Rep.: Mrs. William Knotts
1912 David St., S.D. 92111 277-1188

SAN DIEGO ROSE SOCIETY
Third Monday, Floral Building, 8 p.m.
Pres.: Harry B. Cutler 466-7579
4671 Toni Lane, S.D.
Rep.: Mrs. Felix White 264-4440
5282 Imperial Ave., S.D. 92114

SOUTHWESTERN GROUP, JUDGES' COUNCIL CALIFORNIA GARDEN CLUBS, INC.
First Wednesday, Floral Building, 10:30 a.m.
Pres.: Mrs. Harry K. Ford 583-4320
4851 Lorraine Dr., S.D. 92115
Rep.: Mrs. Roland S. Hoyt 296-2757
2271 Ft. Stockton Dr., S.D. 92103

OTHER GARDEN CLUBS

ALFRED D. ROBINSON BEGONIA SOCIETY
Third Friday, Homes of Members, 10 a.m.
Pres.: Miss Myrle Patterson 224-1572
4310 Piedmont Dr., S.D. 92107

BERNARDO BEAUTIFUL & GARDEN CLUB
First Wednesday, 1:30 Seven Oaks Community Center, Bernardo Oaks Dr., Rancho Bernardo
Pres.: Fred W. Walters 748-1486
12048 Callado Dr., S.D. 92128

CARLSBAD GARDEN CLUB
First Friday, VFW Hall, Carlsbad, 1:30 p.m.
Pres.: Mrs. Wanda Bond
VFW Hall, Pio Pico & Oak St., Carlsbad 92008

CHULA VISTA FUCHSIA SOCIETY
Second Tuesday, Norman Park Recreation Center, 7:30 p.m.
Pres.: Mr. August H. Goerke 420-3930
481 Flower, Chula Vista 92110

CHULA VISTA GARDEN CLUB
Meets 3rd Wednesday 1:00 p.m.
C.V. Woman's Club Bldg., 357 G St., C.V.
Pres.: Mrs. M. D. Holmes 422-0490
68 E. Sierra Way, C.V. 92010

CLAIREMONT GARDEN CLUB
Meets Third Tuesday, 9:30 a.m.
Pres.: Mrs. Stanley Fletcher 276-2520
3090 Chicago St., S.D. 92117

CORONADO FLORAL ASSOCIATION
Meets 1st Tuesday, Red Cross Bldg., 1113 Adella Lane
Pres.: Capt. Richard W. Parker, U.S.N. Retired 435-6454
508 Glorietta Blvd., Coronado 92118

CROSS-TOWN GARDEN CLUB
Fourth Tuesday. E. San Diego Woman's Club, 4037 39th St., S.D. 92115, 8 p.m.
Pres.: Charles Williams 284-2317
4240 46th, S.D. 92115

CROWN GARDEN CLUB OF CORONADO
Fourth Thursday, Red Cross Bldg, 1113 Adella Lane, 9:30 a.m.
Pres.: Mrs. Robert H. Keehn 435-8268
1111 Coronado, Coronado 92118

DELCADIA GARDEN CLUB
First Wednesday, Encinitas Union Elementary School, 7:30 p.m.
Pres.: Mrs. I. F. Nichols 753-5409
159 Diana, Leucadia 92046

DOS VALLES GARDEN CLUB (PAUMA VLY.)
Meets 2nd Tuesday, Pauma Valley Center 1:30
Pres.: Mrs. William C. Myers 742-3325
Country Club Dr., Pauma Valley 92061

ESCONDIDO GARDEN CLUB
3rd Friday, Veterans Memorial Hall 1:00 p.m.
Pres.: Mrs. Victor F. Forrester 745-9657
Reidy Canyon Rd., Escondido 92025

FALLBROOK GARDEN CLUB
Last Thursday, Fallbrook Woman's Clubhouse, 1:30 p.m.
Pres.: Mrs. Roman E. Shore 728-7044
1211 Pepper Tree Lane, Fallbrook 92028

GROSSMONT GARDEN CLUB
Second Monday, La Mesa Chamber of Commerce Bldg., University Ave., La Mesa 92041
Pres.: Mrs. Raymond Moore 466-6943
4679 Harbison Ave., La Mesa 92041

IMPERIAL BEACH GARDEN CLUB
3rd Tuesday, Imperial Beach Civic Center, 1:30 p.m.
Pres.: Mrs. Alice Loomis 424-7235
874 Fourth, Imperial Beach 92032

LAKESIDE GARDEN CLUB
2nd Monday, Lakeside Farm School, 7:30 p.m.
Pres.: Mrs. Louis Griffin 448-4199
12024 Lakeside Ave., Lakeside 92040

LA MESA GARDEN CLUB
(Garden Sec. Womans' Club)
3rd Thursday, La Mesa Women's Club, 1:00 p.m.
Pres.: Mrs. J. Wells Hershey 448-6396
11928 Orchard Road, Lakeside 92040

LAS JARDINERAS
Third Monday, 10 a.m. Homes of members
Pres.: Mrs. James I. Robinson 223-0125
3443 Whittier St., S.D. 92106

LEMON GROVE WOMAN'S CLUB
(Garden Section)
First Tuesday, Lemon Grove Woman's Club House, 1 p.m.
Pres.: Mrs. James H. Sharp 466-8300
8124 Alton Dr., Lemon Grove 92045

MISSION GARDEN CLUB
Meets First Monday, 8 p.m.
Barbour Hall, Pershing and University
Pres.: Dr. R. J. McBride 465-1311
4635 Panorama Drive, La Mesa
Rep.: Julia Bohe 282-7422
3145 No. Mt. View Dr., S.D. 92116

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Third Wednesday, National City Community Bldg., 7:30 p.m.
Pres.: Arliss A. Agnew 477-8416
420 L St., National City 92050

NORTH COUNTY ROSE SOCIETY
Meets First Tuesday, 7:30 p.m. at Palomar College
Pres.: James A. Kirk 748-3870
15131 Espola Road, Poway

NORTH COUNTY SHADE PLANT CLUB
Second Sat., 1:00 p.m. Seacoast Hall, Encinitas
Pres.: H. Marshall Chadwell 755-9219
R. 1 Box M32, Del Mar 92014

O. C. IT GROW GARDEN CLUB
Second Wednesday, S. Oceanside School Auditorium, 7:30 p.m.
Pres.: Mr. Earl H. McPherson 729-1785
3476 Pio Pico Dr., Carslbad, Calif. 92008

PACIFIC BEACH GARDEN CLUB
Meet second Monday, 7:30 p.m. Community Club House, Gresham and Diamond Sts., Pacific Beach
Pres.: Mrs. Charles E. Domler 283-3642
5158 Hastings Rd., S.D. 92116

PALOMAR CACTUS & SUCCULENT SOCIETY
Third Saturday, 1 p.m., Palomar College Foreign Language Building, Room F22
Pres. Mrs. Katie McReynolds 755-4047
P.O. Box 111, Del Mar 92014

PALOMAR ORCHID SOCIETY
Meets Third Wednesday, 7:30 p.m., Avocado Inn, 114 Hillside Terrace, Vista
Pres.: Eugene A. Casey 753-3571
932 Crest Drive, Encinitas

POWAY VALLEY GARDEN CLUB
2nd Wednesday, 9:30 a.m., Community Church
Pres. Mrs. Leo Ostrom 748-3708
15222 Hilltop Circle, Poway 92064

RANCHO SANTE FE GARDEN CLUB
Second Tuesday—Club House, 2:00 p.m.
Pres.: Mrs. John E. Grimm 756-1106
P. O. Box 241, Rancho Santa Fe 92067

SAN CARLOS GARDEN CLUB
Fourth Tuesday, San Carlos Club, 6955 Golfcrest Drive
Pres. Mrs. Glenn F. Bliss 463-4349
6275 Cowles Mountain, San Diego 92119

SAN DIEGO BRANCH AMERICAN BEGONIA SOCIETY
Fourth Monday, Barbour Hall - Univ & Pershing, 8 p.m.
Pres.: Mrs. Eugene Cooper 295-7938
4444 Arista Dr., S.D. 92103

SAN DIEGO BROMELIAD SOCIETY
Second Monday, 7:30 p.m. Meets at home of president
Pres.: Mrs. Cleoves Hardin 469-3038
9295 Harness Rd., Spring Valley 92077

SAN DIEGUITO GARDEN CLUB
Third Wednesday, Seacoast Savings Building, Encinitas, 10 a.m.
Pres.: Mrs. Waldo Vogt 755-4772
773 Barbara Ave., Solana Beach 92075

SAN MIGUEL BRANCH AMERICAN BEGONIA SOCIETY
First Wed., Youth Center, Lemon Grove
Pres.: Ferris Jones 466-0138
4610 68th St., S.D.

SANTA MARIA VALLEY GARDEN CLUB
Second Monday, Ramona Women's Club House, 5th and Main, 9:30 a.m.
Pres.: Mrs. W. F. Squibb 789-1157
161 Steffy Lane, Ramona 92065

SWEETWATER JUNIOR GARDEN CLUB
First Monday, 7:30 p.m. Meets at home of Temporary President
Temp. Pres.: Cleoves Hardin 469-3038
9195 Harness Rd., Spring Valley 92077

VALLE GARDEN CLUB, POWAY
Meets 3rd Thursday, 10 a.m. Homes of members
Pres.: Mrs. Brown Thompson III
16728 Espola Rd., Poway 92064

VISTA GARDEN CLUB
First Friday, Vista Rec. Center 1:00 p.m.
Pres.: Mrs. Henry C. Shultz
1847 Alta Vista Dr., Vista 92083

VISTA MESA GARDEN CLUB
Second Tuesday, 2 p.m. Family Association Center
Pres.: Mrs. Clara Haskins 465-0910
2352 El Prado, Lemon Grove 92045



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